

XXX.—*Short Characters of some new Genera and Species of Algæ discovered on the coast of the Colony of Victoria, Australia.*
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[With a Plate.]

1. BELLOTIA, Harv.

Frons filiformis, solida, umbellatim ramosa ; apicibus ramorum fasciculato-comosis. *Receptaculum* in quoque ramo unicum, cylindricum, median partem rami circumvestiens, e paranematibus simplicibus, verticalibus, dense stipatis constitutum. *Sporæ* ad paranemata lateraliter dispositæ, oblongæ, transversim striatæ.

Bellotia Eriophorum, Harv.

Hab. Cast ashore at the Heads of Pt. Phillip Harbour, and also on Phillip Island, Western Port. Perennial ?

Root clothed with stuppous filaments. *Stems* many from the same base, 1 to 2 feet long, twice as thick as hog's bristle, terete, rigid, somewhat horny, twice or thrice umbellately divided. *Umbels* of twenty to thirty rays or more, from 3 to 4 or 5 inches apart ; the bases of all the rays tomentose, the rest bare and quite smooth. *Apices* of all the branches crowned with a very dense spherical tuft of brown filaments, $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter. *Receptacle* cylindrical, developed round each branch, and formed of very densely packed, simple filaments (*paranemata*), vertically issuing from all sides of the branch, and whorled round it. This receptacle begins to be formed in the upper half of all the young branches, above the middle, and extends at first nearly to the commencement of the apical tuft ; but as the growth continues the barren portion of the branch above the receptacle considerably elongates, and the receptacle, in a full-grown branch, is removed to about the middle portion, where it forms a sausage-shaped swelling nearly 2 inches in length and thrice the diameter of the barren branches. The *paranemata* are quite simple, articulated, cylindrical, their cells three or four times as long as broad, filled with pale olive endochrome. *Spores* linear-oblong, sessile on the sides of the paranemata, alternate or secund. *Substance* of the stem and branches rigid ; of the apical tufts soft, and when young somewhat gelatinous. *Structure* : a cross cutting of the stem shows a firm cellular substance composed of minute polygonal cells, set in lines radiating from a central point.

This very remarkable plant forms quite a new type in ramification in the family of the *Sporochnoideæ*, to which it belongs. Except in the colour, which is olivaceous brown, one of its umbellate branches bears a very striking resemblance to the many-

headed cotton-grass (*Eriophorum polycephalum*); whence the trivial name. The genus itself is inscribed to the memory of the late lamented Lieut. Bellot of the French Navy, who so nobly volunteered his services for the search after Sir John Franklin, and whose untimely death will not soon be forgotten.

2. CURDIEA, Harv.

(but not of Harv. MS. in Herb. T. C. D. 1852).

Frons plana, coriaceo-membranacea, laciniata, e margine sæpe pinnatim foliolosa, duplici strato constituta; cellulis interioribus rotundato-angulatis majoribus peripheriam versus sensim minoribus, periphericis minimis verticaliter subseriatis. Coccidia marginalia, globosa, sessilia, sporas minutas in filis ex placenta carnosa centrali radiantibus evolutas, intra pericarpium crassissimum celluloseum carpostomio apertum foventia. Tetraspora in nematheciis intramarginalibus oblongis evolutæ, cruciatim divisæ.—Algæ rubro-sanguineæ, siccitate rigidæ.

Curdiea laciniata, Harv.

Hab. Cast ashore at Port Fairy, Port Phillip Heads, and Western Port. Not uncommon.

Fronde 1 to 2 feet long, very variable in ramification; the lacinia from $\frac{1}{2}$ inch to an inch broad, cuneate at base, linear-oblong, variously cleft, the lesser segments narrow, obtuse. Sometimes the margin is winged with leaflets. *Substance* when dry rigid, seldom adhering to paper. *Coccidia* marginal, gland-like, generally very numerous on fertile plants. *Nemathecia* oblong or linear, within the margin, elevated, composed of vertical, articulated filaments, among which the tetraspores are found.

In habit this plant resembles a large coarse-growing specimen of *Callophyllis laciniata*, but the structure and fruit are very different. *Curdiea* belongs to *Sphærococcoideæ*, and stands next to the section *Podeum* of *Gracilaria*, from which and from every other allied genus the position of the tetraspores separates it. The name is bestowed in honour of Dr. Daniel Curdie of Tandarook, near Geelong, an early observer of the *Algæ* of Australia, and to whom I am indebted for an interesting collection of *Algæ* collected at the mouth of the Glenelg River, near Cape Northumberland. - I originally selected a genus of *Chatangiæ* to bear Dr. Curdie's name, and have distributed specimens to some friends under the name *C. australis*, Harv. MSS., but since my visit to Australia I have ascertained that the plant so named is identical with *Acrotylus australis*, J. Ag., with whose *cystocarp* Prof. Agardh was unacquainted when he classed it among *Cry-*

ptonemeæ. I have now collected numerous fruiting specimens, and find that the structure of the *cystocarp* is identical with that of *Chætangium*, near which genus *Acrotylus* must now be placed. It is in fact very closely related to the section *Nothogenia*.

3. GULSONIA, Harv.

Frons gelatinoso-membranacea, teres, nodoso-annulata, decomposita ramosa, ex tubo centrali crasso articulo monosiphonio filis anastomosantibus longitudinalibus laxo circumdato, et filis horizontalibus excurrentibus dichotomis fastigiatis mucro hyalino firmiori inclusis constituta. *Fructus*

Gulsonia annulata, Harv.

Cast ashore, Phillip Island, Western Port. Rare.

Fronde densely tufted, 6 to 8 inches long, decompositely much branched, the branches and their divisions and ramuli irregularly scattered, all tapering to the base and apex, and all annularly constricted at short intervals; the nodes swollen and deeply coloured, the internodes pale, like very narrow transverse rings. A cross section shows a very large central tube, surrounded by a narrow stratum of longitudinal filaments, from which radiate towards the circumference, dichotomous, callithamnoid, fastigate filaments, whose branches are separated by pellucid jelly of firm consistence, a layer of which also forms a pellucid envelope of the branch. A longitudinal section shows that the central tube is septate, the septa at intervals of 6 or 8 diameters apart; and that the longitudinal filaments anastomose into a laxly netted filamentous sheath, enclosing the central tube. The filaments of the periphery are thrown off irregularly from the outer part of this sheath. *Colour* a fine pinky-red, staining the paper on which the plant may be dried. *Substance* very soft.

This beautiful plant, of which the fruit is at present unknown to me, seems to be the type of a new genus of *Cryptonemiaceæ*, which I inscribe in honour of Mrs. Gulson of Exmouth, whose explorations of the shells and *Algæ* of the Devonshire coast are well known to and appreciated by British naturalists. From its structure I am disposed to place *Gulsonia* near *Catenella* or *Gattya*, from both which it differs sufficiently in habit, substance and structure to forbid its union under either. It may also be compared to *Gloiopeltis* and *Endocladia*, but differs essentially from these in several particulars. In external habit it may be compared to a gigantic *Crouania*, or to a *Lomentaria* or a *Champia* with very short joints and of a very soft substance. In size, colour and substance it something resembles *Champia affinis* when fresh, but more rapidly decomposes.

4. HANOVIA, Sond.

Hanovia australis, Sond.—The *cystocarps* of this plant have been sent to me by my friend Geo. Clifton, Esq., of Fremantle, West Australia. They are *ceramidia*, closely resembling those of a *Dasya*. Hence this genus must be removed from *Ceramiaceæ* to *Rhodomelaceæ*, where it will be placed next to *Halydictyon*.

5. BALLIA, Harv.

1. *Ballia Robertiana*, n. sp.; ramis minoribus, rachidibusque plumularum cylindraceutis (nec ad genicula constrictis) distiche plumulatis; plumulis incurvis oblongis bipinnatis oppositis inter se alterne inæqualibus, una pusilla pinnata v. vage multifida ramulis inflexis, altera elongata bipinnata basi ramulis incurvis vage divisis fructiferis stipata, pinnis ambitu ovatis, pinnulis oppositis incurvis creberrimis obtusis. (Pl. VIII. C. fig. 2.)

Hab. Port Fairy.

2. *Ballia Mariana*, n. sp.; ramis minoribus rachidibusque plumularum cylindraceutis (nec ad genicula constrictis) tristiche plumulatis v. verticillatis, plumulis incurvis e quoque geniculo ternis vel pluribus inter se inæqualibus, duobus pusillis inferne multifidis superne pinnatis rachide longe excurrente, uno majori verticillatim plumellato, plumellis patentibus pinnatis bipinnatisve rachide excurrente, ramulis ultimis oppositis vel sæpe alternis. (Pl. VIII. C. fig. 1.)

Hab. Port Fairy.

6. APJOHNTA, Harv.

Frons stipitata, dendroides. *Stipes* radicans, monosiphonius, clavatus, annulatim constrictus et transversim rugulosus, epidermide tenui calcarea donatus, in ætate majori apice ramis coronatus. *Rami* confervoidei, umbellatim polychotomi, flabellatim expansi, fastigiati, liberi, articulati; articulis clavatis monosiphoniis, omnibus basi ruguloso-annulatis, succo aquoso viridissimo repletis.

Apjohnia latevirens, Harv.

Hab. In deep tide pools, near low water mark, Phillip Island, Western Port.

Fronds rising from a mat of very tough and rigid branching fibres, densely tufted, 3 to 6 inches high, stipitate, tree-like. *Stipes* from an inch to an inch and a half long, clavate, nearly 2 lines in diameter at the thickened upper extremity, at first obtuse and quite simple, consisting of a large, single cell filled with watery endochrome. In advancing age this primordial cell throws out from its apex four or more similar but smaller cells,

each of which is afterwards crowned with four or five more, and thus, by repeated developments, an umbellately flabelliform, fastigiata frond is formed. The space between each axil (or each *internode*) invariably consists of a single cell, enlarging upwards, and annulated in its lower half. The older branches are thinly coated with calcareous matter; the younger are membranaceous.

This plant is named in honour of Dr. James Apjohn, Professor of Chemistry in the University of Dublin, and Mrs. Apjohn, the latter of whom is a zealous collector and observer of British Algæ; the former, I need not say, is worthy of any scientific commemoration that may be offered to him. The genus belongs to *Valoniæ*, and among Australian genera will stand nearest to *Struvea*, Sond.; but is much more closely related to the West Indian *Chamædoris*, Mont., from which, however, it differs sufficiently in habit and character. In aspect *Apjohnia* looks almost like a very luxuriant and robust specimen of *Cladophora pellucida*, though not very closely related to that plant.

Melbourne, January 10, 1855.

XXXI.—*Some Remarks on Vegetable Placentation.*

By JOHN CLELAND, Esq.*

THE object of the few following remarks is to bring forward some evidence against the axile theory of placentation, and to show that the free central placenta found in many plants is really composed of a second whorl of carpels with everted edges.

My observations are founded entirely on the *Lychnis* and *Primula*. In the latter we have the most perfect example of a free placenta, while the former illustrates most distinctly the theory which I wish to bring forward.

On opening the fruit of the *Lychnis dioica*, its carpels are seen to be united into a perfect circle, and to present no trace of their homology with the leaf except in the venation on their internal surface. When the seeds are removed the funicular cords are seen arranged in five vertical double rows with smooth spaces between. On making a transverse section, these smooth spaces are found to be composed of a pad of white cellular tissue, and alternating with them and with the rows of cords are the five rays of a star-shaped mass of the same white cellular substance occupying the centre. This star seems clearly to indicate the formation of the placenta from five parts, and the position of the

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